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**Duke University
Medical Center**

Research Update

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From Our Director...

Center faculty and staff can look back on 2003 with much pride. Our research funding increased to over \$20 million for the first time in our history, representing a jump of over 30% from the previous year. Much of this increase came in areas of health services research that are central to our core mission: improving the delivery and outcome of primary care to our nation's veterans. Particularly gratifying was seeing several long pilot projects take shape into important patient interventional studies that are now funded projects. For example, Dr. Hayden Bosworth and his team's tailored intervention designed to improve blood pressure control in veterans with hypertension received a significant R-01 award from the National Heart, Lung, and Blood Institute. This shows that persistent and incremental work can result in great success.

With our increased funding and expanding faculty and staff, we are challenged to maintain a cohesive Center, both in space, purpose and function. To this end we have created new positions in quality assurance, software and Web development, and network administration. Our goal is to continue to build a research environment that is cutting edge in technology and extremely supportive of innovation.

Our greatest challenges for our existing and new studies will be to take the extra step to ensure that successful interventions are translated into practice. One of the core functions in our new strategic plan lays out what we think will be the important steps to that end, including the development of our information infrastructure and having our staff responsible for quality assurance. Of course we all need to think of new techniques and partnerships to implement our findings. It will be the hardest thing that we do, but potentially the most rewarding.

Eugene Oddone, M.D., M.H.S.

Dawn Provenzale Begins CanCORS Study

What influence do characteristics such as race, ethnicity, age, gender or socioeconomic status and beliefs of cancer patients and providers, as well as the characteristics of organizations delivering care, have on treatment and outcomes of cancer patients from diagnosis to recovery or death? That is what Dawn Provenzale, M.D., of the Durham VA, and her co-principal investigator Michelle van Ryan, Ph.D., of the Minneapolis VA, would like to determine in their part of a broader study by the Cancer Care Outcomes Research and Surveillance (CanCORS) Consortium. The Consortium study draws on seven Primary Data Collection and Research sites, with the VA being just one of those of these seven sites. The Consortium's goal "is to examine the care delivered to population-based cohorts of newly diagnosed patients with lung and colorectal cancer in multiple regions of the country and assess outcomes associated with that care." CanCORS is a research consortium funded by the National Cancer Institute to evaluate the quality of cancer care and how processes of lung and colorectal cancer care influence outcomes. The Consortium study began in 2001 and runs for five years with a funding of \$34 million.

"For the VA portion of the study, we'll be measuring the quality of lung and colorectal cancer care for 1000 new lung and 1000 newly diagnosed colorectal cancer patients at eleven VA sites throughout the country," says Dr. Provenzale. "We'll then be combining and comparing that care with the care at the non-VA sites."

There will be three components in determining the patient quality of care. The first is a patient interview to determine what kinds of care they've received, their attitude towards the care they received, and their quality of life. The second involves examining the patient's medical records to see exactly what kinds of care the patient received, if it conforms to established standards of care, and if there are variations in the kinds of patient care in the VA with that found outside the VA. Third, medical records will be examined to determine if there are any variations in patient care based on race, ethnicity, gender, age, and socioeconomic status.

"This is a large and important study in that it will provide the VA, as well as researchers outside the VA, with new information on the kinds of care that patients are receiving for these two very common cancers," says Dr. Provenzale. "It may also provide us with information on any variations that are occurring within the VA system. The VA also can use this data to modify the kinds of healthcare patients receive, to improve the quality of that care, and improve the access to the kinds of care that patients need."

The VA portion is a five-year, \$4.7 million study funded by the Department of Veterans Affairs. The VA sites will include medical centers in Baltimore, Biloxi, Durham, Chicago-Lakeside and Hines, New York Harbor, Minneapolis, Nashville, Portland, Temple, and Tucson. The study began in July 2003.

Will Yancy and Eugene Oddone Begin Weight-Loss Study

Nationwide approximately 65% of Americans are overweight to the degree that it is hazardous to their health, while 30% of Americans are considered obese. Veterans, however, have a higher prevalence of being overweight or obese. Among a 1998-99 sample of veterans from the Durham VAMC outpatient clinic, 79% of patients were considered overweight and 36% of patients were considered obese. A preventable epidemic, obesity risks the nation's and our veterans' health with multiple chronic illnesses such as diabetes mellitus, hypertension, coronary heart disease, and hyperlipidemia as well as straining the nation's health care resources. These obesity-related illnesses are prevalent among veterans and are costly to treat. There are few proven therapies available for the treatment of obesity and strikingly few therapies offered to veterans by the VA. Most VA hospitals do not offer medications, known as second-line therapies, for patients who are unable to lose weight by first-line diet and exercise recommendations.

With the rising rates of obesity and the concurrent health risks but with limited treatment options available to VAMC clinicians, VA co-investigators William Yancy, M.D., M.H.S., and Eugene Oddone, M.D., M.H.S., and Eric Westman, M.D., M.H.S., of Duke University Medical Center, have begun a study that will examine two possible interventions to help patients achieve safe, sustainable weight loss.

"Our study evaluates two medically supervised, secondline therapies for weight loss in the VAMC outpatient setting," states Dr. Yancy, "diet only versus diet, plus medication. This will be a randomized trial and the primary objective will be to evaluate the effectiveness, safety, and tolerability of a low-carbohydrate, ketogenic diet (LCKD) for weight loss over a one-year duration in overweight VA medical outpatients with stable comorbidities compared with orlistate plus a low-fat, reduced-energy diet (O+LFD)."

A low-carbohydrate ketogenic diet restricts carbohydrate intake to a level where the body relies on stored fat to be broken down into fatty acids, which can be used as fuel or transformed into ketones, which are also alternative fuels the body uses when carbohydrates are in short supply. Orlistat is an intestinal lipase inhibitor, meaning it inhibits one of the enzymes in the gut that blocks intestinal absorption of about 30% of ingested fat. By reducing the amount of absorbed fat calories, a person loses weight. Orlistat might also motivate patients to adhere to a low-fat diet because unpleasant gastrointestinal side-effects can occur if too much fat is eaten while taking the medication.

"One of our goals is determine where the low carbohydrate diet stands in terms of weight loss in comparison to other therapies we have," says Dr. Yancy. "We've already shown that the low carbohydrate diet can result in greater weight loss compared to low fat, energy restricted diet. Now

we want to know if it compares with second-line therapies that are considered to be more effective than low-fat energy-restricted diets.”

Both of these methods for weight-loss have clear advantages for the VA to consider. The LCKD is a potentially inexpensive method for reducing weight. Because the diet is high in meat, eggs and cheese, it may be more appealing to large numbers of male veterans than other diets. The O+LFD is appealing because the medication orlistat has a high safety profile.

“Current diet and exercise recommendations are not effectively reversing the growing trend towards obesity and more aggressive measures are needed,” states Dr. Yancy. “The VA, at this point, has very little to offer veterans for weight loss. I believe a comparison trial of the LCKD versus the O+LFD will provide the needed information for the VA as it considers more aggressive interventions to combat obesity, and possibly giving us new weight-loss interventions that have not been previously available.”

Kelli Dominick to Begin Career Development Award

Kelli Dominick, Ph.D., who started with HSR&D in July 2001 as an Office of Academic Affiliations-funded post-doctoral fellow, and then became a member of the HSR&D faculty in May 2002, has been granted a three-year Research Career Development Award.

During her fellowship, Dr. Dominick examined VA medical and pharmaceutical data to determine patterns of medical care for osteoarthritis (OA) patients as well as racial variations in the pharmacological treatment of osteoarthritis. Since her faculty appointment, she has continued analyzing local and national VA databases examining racial differences in health services use among veterans with OA. She has also obtained funding for and conducted three pilot studies related to OA: The first, a survey research project on the pharmacological treatment of OA among veterans that also examined racial differences in use and perceptions of these treatments; the second, an ongoing daily diary of veterans to determine the racial differences in coping methods among veterans with OA; and the third, a clinical trial examining the effectiveness of home-based strength training for veterans with knee OA.

“When I came here as a post-doc fellow, my interest was in health services research related to osteoarthritis, particularly prescription medication use,” says Dr. Dominick. “Since I’ve been here I’ve expanded my focus to look at other components of treatment as well. Drugs are one component, but there are others, such as physical activity. So I’ve been able to incorporate my exercise-physiology background, yet maintain my focus on arthritis, through a pilot study of home-based exercise for osteoarthritis. It’s a little bit of coming back to my roots. I worked on exercise trials at Duke before going back for my Ph.D., so it’s a way for me to incorporate my previous work within a health services environment. Now

I’m looking more at the broad picture, not just drug treatment or patterns of treatment, but also self-management.”

Dr. Dominick sees her research focus for the next several years remaining with the epidemiology and self-management of osteoarthritis. “In the long-run, I want to examine why some veterans progress more slowly or more quickly with osteoarthritis. Are there factors we can tease out that cause this to happen that could have implications for treatment? What are the risk factors for onset? I want to integrate the epidemiology of osteoarthritis with health services research. I think there are bridges to be linked, and that one can inform the other.”

As a faculty member Dr. Dominick has served as an epidemiologist for the VA’s nation-wide Registry of Veterans with Amyotrophic Lateral Sclerosis, overseeing the project’s day-to-day scientific details and operation. “Working on the ALS project has been very valuable in that it has given me experience on a very large study that operates within the wide VA system,” says Dr. Dominick. “It’s also given me valuable opportunities and experience in writing grant proposals.”

Dr. Dominick’s primary mentor will be Hayden Bosworth, Ph.D., and Morris Weinberger, Ph.D., and Eugene Oddone, M.D., her secondary mentors.

Jennifer Strauss Receives Associate Investigator Appointment

Jennifer Strauss, Ph.D., has received a two-year HSR&D Associate Investigator appointment. Dr. Strauss came to HSR&D in August 2001 as a postdoctoral fellow, which she completed in July 2003. Since that time she has worked with Marian Butterfield, M.D., the principal investigator for the HSR&D Merit Review project “Psychiatric Advanced Directive (PAD) for Improved Mental Health Care.”

Dr. Strauss, a clinical psychologist, has had a long-standing interest in the doctor-patient relationship and psychotherapy research. Much of her graduate work focused on exploring factors that influence treatment outcomes, including the doctor-patient alliance. During her fellowship she worked under the mentorship of several VAMC researchers, including Drs. Hayden Bosworth, Jeannie Beckham, and Patrick Calhoun. Her research focused primarily on the doctor-patient relationship in psychotherapy and pharmacotherapy, and factors associated with improved quality of life among male veterans with posttraumatic stress disorder (PTSD). During this time she also began a collaborative relationship with Dr. Butterfield examining risks for HIV among veterans with mental illness. “I conducted secondary analyses of data looking at severely mentally ill veterans,” says Dr. Strauss, “what they know about risks of HIV, and how that was associated with their behavioral risks and clinical characteristics.”

The experience she gained while working on this project will prove very helpful during her Associate

Investigator appointment says Dr. Strauss. "Working with Dr. Butterfield gave me an excellent foundation in mental health services research and how to begin to build an independent line of services research. I feel lucky that I will continue to benefit from her mentorship during my AI appointment."

For the PAD study, Dr. Strauss's focus will be the patient/doctor relationship. "Completing a PAD should encourage a patient to think about their treatment preferences and articulating what those preferences are," says Dr. Strauss. "We've hypothesized that this process will increase collaboration and strengthen the relationship between the patient and the mental health provider."

Dr. Strauss also plans to pursue her interest in psychotherapy interventions research, in particular transferable, self-administered treatments that can be delivered with minimal involvement of mental health professionals. She has received a Locally Initiated Projects grant through HSR&D to conduct a pilot study of guided imagery for PTSD among women veterans. "Self-administered therapies are not appropriate in all cases," says Dr. Strauss, "but if shown to be effective, these treatments may provide cost effective and very transportable interventions to the VHA to complement ongoing therapies, and some cases replace individual therapy." She hopes that these pilot studies will lay the groundwork for a competitive career development award application in the future.

HSR&D Welcomes New Ph.D. Fellow

The Center welcomes George Lee Jackson, Ph.D., who began his Agency for Healthcare Research and Quality fellowship on December 1st. Dr. Jackson's research interests focus on how the organization of healthcare delivery impacts patient outcomes.

During his fellowship with HSR&D, Dr. Jackson wants to focus his research on combining methods of epidemiology and health services research to evaluate mechanisms for providing care for the chronically ill, especially patients with diabetes. "I see this including two related lines of research," says Dr. Jackson. "The first involves utilizing methods that maximize internal validity to study the effectiveness of specific chronic disease management interventions, such as group visits for diabetic patients or the use of reminders to monitor disease status. The second involves how to link and organize the delivery of effective interventions so that the chances of achieving best possible patient outcomes can be maximized."

Majoring in health policy and administration, Dr. Jackson received a B.S. in Public Health from the University



of North Carolina at Chapel Hill in 1996. He then went on to receive a Master of Healthcare Administration in 1998, and then a Ph.D. in epidemiology in 2003, both from the School of Public Health, University of North Carolina at Chapel Hill. His dissertation, *Organizational Characteristics of Primary Care Clinics Associated with Better Diabetes Outcomes*, examined the relationship between the organization of Veterans Health Administration primary care clinics and hemoglobin A1c of diabetic patients. The dissertation was completed in cooperation the VA HSR&D Centers Durham, Sepulveda, and Ann Arbor.

Among his projects during graduate school, Dr. Jackson wrote and produced a number of ERIC Notebooks and provided responses to requests for epidemiology consultations. He also served on the methodology staff for a clinical practice guideline produced by the Consortium for Spinal Cord Medicine, which is administered by the Paralyzed Veterans of America.

The opportunity to do research where results can be readily utilized in the making of clinical and administrative decisions and implementing related programs is what attracted Dr. Jackson to the Center's fellowship program. "Working in an environment that will allow me to do methodologically rigorous science for publication while helping clinicians, administrators, and policy makers to take actions to improve the care of the organization's patients is very appealing to me," says Dr. Jackson. "The VA provides one of the best opportunities to pursue this type of career, while at the same time providing an educational link with cutting-edge academic healthcare centers."

Dr. Jackson is a member of the American Public Health Association, Academy Health, the North Carolina Public Health Association, the Society for Epidemiologic Research, and the Southern Health Association. His primary HSR&D mentors are David Edelman, M.D. and Morris Weinberger, Ph.D.

Non-Pharmacological Therapy Use for Osteoarthritis

Osteoarthritis (OA), the most common chronic disease and leading cause of disability in older adults, is most commonly treated with pharmacotherapy. With an increasing older adult population, the demand for OA treatment will increase significantly, with rising medication costs putting a financial strain on patients as well as health care systems. These factors, along with negative side-effects of OA symptom-relieving analgesics and anti-inflammatory drugs, such as gastrointestinal bleeding, contribute to patient, doctor and research decisions to seek non-pharmacological alternatives or supplements to pharmacotherapy.

"We wanted to look at the three most common non-pharmacological therapies that patients are using to relieve their osteoarthritis; exercise, physical therapy (PT), and dietary and herbal supplements," says Kelli Dominick, Ph.D.,

co-author of the study published in the October 2003 issue of *Aging: Clinical and Experimental Research*.^{*} “There are several common reasons patients seek non-pharmacological therapies: They are often cheaper than medications; they give patients a sense of control over their health; and some therapies, such as exercise, have been found to be just as effective in decreasing pain as non-steroidal anti-inflammatory drugs.” Though clinical trials have shown the efficacy of all three alternatives, research literature shows that these methods are under-utilized.

Drawing on a sample of 205 veterans with OA, the authors found that 46% of subjects reported currently exercising, 11% were receiving PT, and 12% were using dietary/herbal supplements. The strongest predictor of subject use of these treatments was perception of their helpfulness in relieving OA symptoms. Eighty-seven percent of the participants who used exercise said it was helpful in relieving symptoms. Of those using PT, 96% believed it was helpful in relieving symptoms, and 82% of those who used dietary and/or herbal supplements believed they were helpful. Physician recommendations were also found to be important in predicting the use of exercise and PT.

The VA patient sample “showed a relatively low use of exercise, physical therapy, and dietary/herbal supplements.” Since patient perceptions of a treatment’s usefulness and physician recommendations were the strongest predictors of use, the study concluded that patient and physician education on these alternative, non-pharmacological treatments were needed.

“The implications for the VA in cost savings, patient self-reliance, satisfaction and clinical effectiveness,” says Dr. Dominick, “are important. Additional research is needed to determine how effective non-pharmacological therapies and self-management of OA can be encouraged in an outpatient setting.”

^{*}Hsieh JB and Dominick KL. “Use of non-pharmacological therapies among patients with osteoarthritis” *Aging: Clinical and Experimental Research* 2003 (Oct.); 15(5):419-25.

Hepatitis B and C, Racial Differences and Risks Among Veterans with Severe Mental Illness

Approximately four million persons in the United States, or 1.8% of the overall population, are infected with the hepatitis-C virus (HCV). The rate for non-Hispanic African Americans, however, is estimated to be as high as 3.2%. For the hepatitis-B virus (HBV), an estimated 5% of the overall U.S. population is infected, with the rate for non-Hispanic African Americans as high as 12%. Persons with severe mental illness (SMI), including veterans, have a 23% rate of infection for HCV and a 20% rate of infection for HBV, considerably higher than for the general population for both races.

As part of a larger National Institute of Mental Health multi-site study, Marian Butterfield, M.D., M.P.H., and her research colleagues conducted a study, published in the January 2004 issue of the *Journal of the National Medical Association*^{*}, to determine the “racial difference in the constellation of risk behaviors associated with HBV and HCV infection among veterans with SMI.” The researchers recruited 376 patients, 155 Caucasians and 221 African Americans, who had been admitted to the Durham VA Medical Center inpatient psychiatric unit with a diagnosis of SMI between 1998 and 2000. There were two questions the researchers wanted to ask: “Does the prevalence of HBV and HCV risk behaviors differ by race in a sample of veterans with SMI?” and “Do racial differences in risk behaviors (combat exposure, injection drug use, sharing needles, and unprotected sex for drugs) account for any observed racial differences in seroprevalence for HBV and HCV?”

Dr. Butterfield and her colleagues found that “African Americans had higher rates of both HVC and HBV than did Caucasians” and that the differences in both were significant. For HCV, African Americans were found to have a 21.3% infection rate versus a 15.5% infection for Caucasians. For HBV, African American patients were found to have a 27.6% infection rate versus 12.3% rate for Caucasians. They also found that “several drug- and sex-risk behaviors were reported significantly more often in African Americans than in Caucasians, specifically smoking crack, sniffing or snorting drugs over their lifetime, unprotected sex for drugs in their lifetime, and multiple sex partners in the past six months.” However, “there was no significant racial difference observed” for persons that were life-long injection drug users. Both of these observations are consistent with findings of high-risk sexual behavior among the general population.

The researchers also state that “The racial differences in diagnosis may be due to differences in treat-seeking patterns for veterans in our service area and may reflect the largely urban and minority characteristic of the surrounding community.” It also noted that “There may be racial differences in susceptibility to HBV, which as been reported in other infections” such as tuberculosis, malaria and for the clearance of HCV.

The investigators concluded that “Although the prevalence of several risk behaviors demonstrates clear racial differences, the actual risks of HCV transmission were similar for African American and Caucasians.” The researchers suggest that screening for both HCV and HBV be done for veterans with SMI since they may have an enhanced vulnerability “to particular domains of risk behaviors.”

^{*} Butterfield MI, Bosworth HB, Stechuchak KM, Frothingham R, Bastian LA, Meador KG, Swartz M, Horner RD. “Racial Differences in Hepatitis B and Hepatitis C and Associated Risk Behaviors in Veterans with Severe Mental Illness” *Journal of the National Medical Association* 2004 (January); 96(1): 43-52.

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Research Update



Faculty Publications

BOSWORTH HB, Bartash RM, **OLSEN MK**, Steffens DC. "The association of psychosocial factors and depression with hypertension among older adults." *International Journal of Geriatric Psychiatry* 2003; 18:142-48.

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WHITED JD, **DATTA S**, **HALL RP**, **FOY ME**, **MARBREY LE**, **GRAMBOW SC**, **DUDLEY TK**, **SIMEL DL**, **ODDONE EZ**. "An Economic Analysis of a Store and Forward Teledermatology Consult System" *Telemedicine Journal and e-Health* 2003; 9(4):351-60.

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